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ORIGINAL LECTURES.

LECTURES ON A CASE OF FACIAL MONOPLEGIA, ILLUSTRATING THE LOCALIZATION OF CEREBRAL FUNCTIONS AND LESIONS.

Delivered at the Philadelphia Hospital

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(Continued from page 28.)

LECTURE II.

GENTLEMEN,—It is not my purpose to speak of the fruitless attempts made to save the life of our patient. He died on the 6th of October, and to-day I present for your consideration the instructive specimens removed from the body. We shall learn much from the confirmation of our anticipations in regard to the facial palsy, and also from the doubts besetting our opinion as to the lesion developed in the last days of his life.

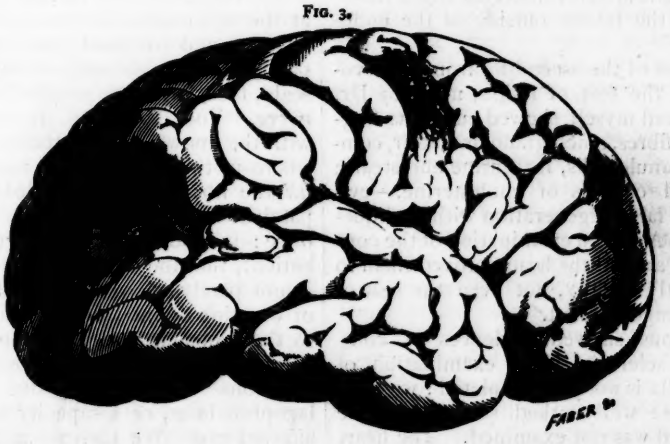
I read for you an extract from the post-mortem notes. *Autopsy*, twenty-four hours after death. Brain—There was some sub-arachnoid œdema of the convexity. No thrombosis of the large sinuses. The base of the skull was healthy. There was no lesion of the cranial nerves. The basilar artery presented two small atheromatous plates. The other blood-vessels appeared healthy. The left vertebral artery was twice as large as the right.

Under the pia mater could be seen three spots of softening on the surface of the right half of the brain. Two of them appeared in the shape of slight depressions of a yellowish color, one on the middle portion of the ascending frontal convolution, the other on the right cerebellar lobe. The third was larger, of a dark color, and situated about the junction of the parietal, occipital, and temporal lobes.

The two areas of softening in the surface of the cerebrum are accurately represented in Fig. 3.

The lesion involved one inch of the length of the ascending frontal convolution. The latter had lost its crest, and the width of the gyrus at the seat of the lesion was much reduced. The area had a distinct line of demarcation. This was found below at nine-eighths of an inch from the lower extremity of the fissure of Rolando, and above at one and a half inches from the upper border of the hemisphere. Laterally the degenerative process involved the gray matter of the convolution, down to the bottom of the fissure of Rolando, posteriorly; anteriorly it extended in the same manner into the precentral sulcus, but also involved the base of the middle frontal convolution to the extent of one-sixteenth of an inch from the bottom of the sulcus. It also involved the lower part of the base of the superior frontal convolution; here the well-defined excavation extended in the shape of a wedge, one-fourth of an inch wide at its base, and rising three-eighths of an inch from the bottom of the sulcus.

FIG. 3.



The patch of red softening was not so well defined. Here there was no loss of substance. It involved the posterior part of the angular gyrus, the transition convolutions, and the posterior extremity of the superior temporo-sphenoidal convolution. Over the seat of lesion I found the embolus, occluding the posterior branch of the Sylvian artery which supplies this region.

A patch of yellow softening about three-quarters of an inch long, and a quarter of an inch broad, was found extending midway between the circumference of the right cerebellar lobe, and the median fissure below. Its direction was perpendicular to the laminæ.

Cutting through the affected convolutions, the degenerative process was found not to extend much deeper than the white matter under the sulci.

The left side of the brain presented no lesion. The medulla oblongata was somewhat hard. After careful examination of the interior of both hemispheres, the peduncles, and the pons, no lesion was found.

Sections were made for microscopic examination of the basal ganglia and the internal capsule. I only found that some of the nutrient arteries showed a slight thickening of the intima outside of the endothelium.

Sections of the ascending frontal convolution at the seat of lesion, made by Dr. Formad and myself, showed numerous fragments of fibres, much granular matter, compound granule cells, margarine and stearic acid, and crystals of cholesterine,—evidences of fatty degeneration without liquefaction. A careful examination of the convolutions around the lesion proved them to be perfectly healthy, not even the seat of vascular engorgement.

The pons showed evidences of commencing sclerosis. The examination of the medulla is not yet completed; we have found here well-marked sclerosis. The spinal cord was not examined. The heart was hypertrophied, excessively dilated, and fatty. The arch of the aorta was considerably dilated up to a point just beyond the innominate. The walls appeared, to the naked eye, to be slightly atheromatous.

The aortic valves were thickened and quite insufficient. There were no vegetations nor ulcerations on the valves. The coronary arteries were decidedly atheromatous.

I shall consider first the facial symptoms. The great questions in cerebral pathology, as illustrated by our case, may be put in the query, Why did we diagnose a lesion of the cortical substance in the region of the facial centre? and why did we suppose this lesion to be embolic in its nature? These questions must be met together, since our conclusions as to either one are important elements in our answer to the other.

I pass on to prove that the lesion could not be in any portion of the facial fibres. It must strike you at once that the facial, like other nerves, consists of two terminal expansions,—one central, in the cortex of the brain, the other peripheral, in different portions of the face; from these the fibres are gathered together into one cord,—the facial nerve. Now, can you conceive of any lesion suddenly (as was the case with our patient) taking place within the narrow limits of this nerve-trunk without disturbing all its fibres? No, gentlemen, wherever in its course the lesion may be, all the fibres existing in the nerve at the seat of trouble are involved. Some branches may have been given off above the lesion—they escape; but those fibres that continue within the trunk down to its final breaking up at the stylo-mastoid foramen must all be affected, and you must have in these cases paralysis of the subcutaneous muscles of the scalp, face, and neck supplied by the facial nerve. You start, then, in such a case, with the knowledge that the lesion is somewhere in the trunk of the nerve, because *all* the fibres of its final distribution are paralyzed. This information you gain at once: instead of finding, as we did in our patient, that the upper portion of the face is not paralyzed, you find that the whole of one side of the face is motionless, even to the orbicular muscle of the eye. The paralysis of the latter stamps upon these affections the characteristic feature of lagophthalmus, or incapacity to close the affected eye. We had no such complete paralysis in our case: therefore, we argued, the lesion must be found above the place where the nerve emerges from the brain,—above the place, in other words, where all the fibres of the facial are gathered into one cord.

Why the upper part of the face should be particularly spared in cases of central lesion, I cannot tell, but the fact is sufficient for the exclusion of trunk lesions. To this we were also led by the absence of

those degenerative changes of nerve and muscle which are always present in cases of long-standing peripheral palsy; we found, in other words, no wasting of the muscles, and no loss of the electric excitability.

One other point: diseases of the temporal bone are one of the frequent sources of injury to the facial nerve. The absence of such favors the diagnosis of central lesion, especially if you can also exclude other causes that act locally upon the nerve, such as rheumatism or cold.

After giving you the reasons I had for separating this case from the class of peripheral palsies, this is, I think, the place to speak of some points in the history of the patient, bearing on the functions of the collateral branches of the facial. These are given off in the transit of the nerve through the petrous portion of the temporal bone. You can readily understand how our knowledge of them enables us to localize accurately the position of a lesion in the trunk; but I desire to dwell only on the features illustrated by our case. Observe that the central lesion has spared some of the terminal branches of the nerve, viz., those supplying the upper part of the face. Has it spared any of the collateral branches? How have they been affected? These questions are of great importance to the physiologist, because the post-mortem has revealed to us the exact seat of the lesion. I am sorry to say that our history does not speak very clearly on these points. For instance, we were not able to determine accurately the status of the sense of hearing. There certainly was no difference between the two sides, and I am inclined to think that the branches of the facial supplying the muscles of the middle ear were not affected.

Very singular features were found in studying the palatine branches. The uvula was drawn to the paralyzed side. This unaccountable phenomenon has been met with in other cases. I do not see how it can be explained except by supposing it to be entirely local and probably existent before the paralysis. The palato-glossus muscle of the anterior half arch, which is known to be supplied by the facial, through Meckel's ganglion, was unaffected. But the palato-pharyngeal of the posterior pillar was undoubtedly paralyzed. According to Sappey, the source of nervous supply to this muscle has not been determined. It receives fibres from the glosso-pharyngeal nerve, but our case would give grounds for believing that these fibres are dependent upon the anastomotic relations with the facial.

Some of the muscles of the tongue are also supplied by the facial nerve,—the digastric, stylo-hyoid, and stylo-glossus. I cannot tell you whether they were paralyzed or not. I have mentioned the apparent difficulty of deglutition, but I have offered for it another explanation. It should be remembered that the tongue seemed to move perfectly, that it was protruded straight, and also held straight within the mouth. At the same time we should not overlook the fact that difficulty of deglutition is one of the symptoms of central facial palsy, though, I think, only present when other nerves besides the facial are involved.

More important than any of these branches is the chorda tympani, a branch, apparently, of the facial, which is connected in some way with the function of taste. This special sense could not be accurately studied in our case, so that nothing has been gained towards determining the doubtful origin of this nerve.

Now we are ready to dismiss the trunk of the facial nerve, and to follow its fibres, from their point of egress at the base of the brain, between the pons and the medulla, up to the facial centre in the convolutions.

Observe at once the new element that comes in to complicate the symptomatology of the case. Heretofore we have been dealing with the facial nerve alone. Outside of the brain it has but one close companion,—the auditory,—and this is not rarely affected by lesions involving the facial in its course. But on entering the pons everything is changed; the facial form here but a small portion of a vast system of fibres running in all directions. The facial filaments are still gathered into one bundle until they reach the facial nucleus, situated in the floor of the fourth ventricle, between the pons and the medulla: therefore a lesion in this region must still cut off all the fibres, and the paralysis must be complete. But other fibres must be involved at the same time, viz., those I described in my last lecture as passing through the pons on their way to the medulla. I concluded, therefore, that in our case there was no lesion of the pons, because there was paralysis of no other region but the face. In fact,

lesions of the lower part of the pons give rise to cross paralysis. The rationale is very simple. Suppose the lesion to be seated in the left side of the pons; of course a certain number of fibres are cut off, which travel down to the anterior pyramids of the medulla, decussate there, and are distributed to the right side of the body: the consequence is *right* hemiplegia; the facial tracts, on the other hand, decussate *above* the seat of lesion, and they are only affected just before they emerge from the surface, in the shape of facial nerves, causing thus *left*-sided paralysis of the face.

The facial tracts have only been traced to the nucleus mentioned; we only know that they decussate above this point in the upper part of the pons, and thence pass into the peduncle of the opposite side. In the peduncle, and in its continuation, —the internal capsule,—the fibres in question bear the same relation to other fibres as in the pons, so that lesions of this region always give rise to hemiplegia in connection with the facial palsy; or, rather, the facial palsy is but one part of a general paralysis of one side of the body; the same for the body and the face, because the lesion is above the places of decussation of both sets of fibres.

One point further as to the pons. You may find it stated that Vulpian has proven that the facial fibres do not decussate in the pons. The experiment appears to be conclusive. He made a section of this body along the median line, and was surprised to find that there was no double facial paralysis. Yet there was some paresis. Now, as Sappey very properly observes, a section of this kind only cuts the fibres coming from the volitional centres, and which decussate before they reach the facial nuclei; but the latter (they are indeed nerve-centres, consisting of large motor cells) are still able to carry on, through the unimpaired roots of the facial, what are probably automatic and reflex movements.

The influence of the facial nucleus probably accounts also for the incomplete character of the paralysis of the face in lesions of the internal capsule. Besides, you must remember that here the fibres are commencing to diverge, so that it is easy to understand how some of them may be affected to the exclusion of others. Please to notice, gentlemen, how, as we approach the cortex, the symptoms I describe begin to resemble those of our case, only that we have still the element of hemiplegia characteristic of lesions of the anterior portion of the internal capsule. It is only when the facial fasciculus is sufficiently expanded to form a large area—large enough to be the sole sufferer by a lesion—that you can expect to find paralysis circumscribed to the face. You can only reasonably look for this as the result of lesions in the white substance near the convolutions, or in the convolutions themselves. In this manner we came to localize the lesion in our case in the middle portion of the ascending frontal convolution,—the centre for the movements of the face.

Now let us turn to the question as to the nature of this lesion. Why did I suppose it to be embolic? The answer to this question will bring us, less forcibly indeed, to the same conclusion in regard to the seat of lesion, as the other line of argumentation; but I must say that it further enabled me to localize the lesion in the gray matter of the convolution, excluding any primary involvement of the white substance beneath; a point which cannot be determined by the other method.

I shall mention first one other point which may be considered as belonging to neutral grounds between the two lines of argument. It is this: that lesions of the pons and peduncles are apt to be hemorrhagic in their nature, and that, though they may be small, yet the sudden pressure of the blood upon the surrounding structures is apt to give rise to very serious, varied, and important symptoms besides the hemiplegia. Nothing of the kind was observed in our case.

Let us return to the embolus. Embolic lesions are more frequent in the periphery of the brain than in the central ganglia. Recollect for a moment the plan of the vascular supply to the brain. The middle cerebral artery, which concerns us mostly in the study of this case, is a continuation of the internal carotid artery; it runs in the Sylvian fissure, and breaks up into terminal branches, which pass on obliquely to the main vessel, to supply the cortex. No obstacle, therefore, is offered to the passage of an embolus: in fact, the road is easy, there are no sharp turns. Precisely the contrary may be said of the branches from the circle of Willis, which dip at once into the brain-structures at the base, in a direction perpendicular to the main

vessel. Hence the comparative immunity from embolic softening of the medulla, the pons, and the basal ganglia.

On the other hand, the latter branches, you will readily perceive, are more subject to excesses of arterial pressure, because of their proximity to the heart, and because of their immediate origin from large blood-vessels. Not only this: they are essentially terminal arteries; they do not anastomose with their companions, nor with the arteries dipping down from the cortex, so that when engorged they are not able to diminish the pressure by means of a collateral circulation. It is no wonder that these small nutrient arteries are more subject to atheroma than those of the cortex, according to the law of distribution of the atheromatous process.

And do you know what atheroma of these blood-vessels means? It means that their walls are thickened, that they present an obstacle to the circulation, that the blood will clot upon the walls, close the vessel by a process of thrombosis, and that ischæmic softening must be the consequence in the parts supplied by them. Atheroma also means that these thickened walls are weakened; that they dilate, forming innumerable miliary aneurisms, which may break at any moment, causing hemorrhage into the nerve-substance. All this may happen in the pons and basal ganglia, and is quite frequently the case in the striated body.

Now, do you not perceive that these lesions require some time for their development? No matter how suddenly the culminating point of the process may take place,—hemorrhage or thrombosis,—do you not perceive that its gradual development must give rise to some symptoms? You may have sleepless or dreamful nights, headaches, noises in the ears, vertigo, numbness of the extremities, slight impairment of motion, or other premonitory signs. I have a patient who for one year previous to an attack of hemorrhage into the brain complained often of being sick only in one side of the body. If he caught cold it was in the right side of the body that he felt the general symptoms, and it was the right nasal chamber that became most affected. Another patient had two attacks of acute transient œdema and numbness of the right arm within six months of an attack of right-sided hemiplegia. Our patient had no such symptoms. In his case, the blood-supply to a portion of the cortex was suddenly cut off by a small clot washed away from the cavities of the heart. The embolus followed the readiest course, and was finally lodged in one of the terminal branches of the Sylvian artery.

I need not tell you why hemorrhages are rare in the area supplied by these branches: it is simply because their plan of distribution differs in every respect from that of the central ganglia. You perceive, then, that we also had direct evidence in favor of the diagnosis of embolism, and, in this, a support for the theory of cortical lesion,—a lesion including the gray matter, because when one of these peripheral branches is occluded you are very apt to have a patch of softening, conical in shape, and with the base to the periphery.

Did the embolus follow, in this case, the most usual course? Not exactly; and I think I can give you the reason for this deviation. Emboli are much more frequent in the left than in the right middle cerebral artery. In trying to account for the exception in our case, bear in mind that to understand the vascular disturbances of an organ we cannot investigate too broad an area of the vascular system. The theory upon which is explained the frequency of left-sided embolism is, that the left carotid arises nearer the apex of the aortic arch than the innominate, and about the place where a small fragment would strike the upper wall of the arch in its way from the left ventricle. In our case the aorta was dilated up to a point just beyond the innominate, so that the latter was situated at the apex of the expansion. It is also worthy of notice, I believe, that the attack occurred probably at night, when the patient was lying upon the right side, as he was always obliged to do. We should also note, though we may fail to see its bearing upon this question, that the left vertebral artery was much larger than the right.

Finally, I also found in the condition of the heart, reasons to exclude the diagnosis of cerebral hemorrhage. It is often the case in atheroma of the blood-vessels, that the heart also becomes degenerated. This weakness of the left ventricle is to be looked upon as a safeguard against high arterial pressure and rupture. In our case we had also a safety-valve action in the aortic regurgitation.

(To be continued.)

ORIGINAL COMMUNICATIONS.

ORGANIC AND FUNCTIONAL ANÆMIA, AND MILK-TRANSFUSION AS A REMEDY.

Read before the Philadelphia County Medical Society, October 9, 1878,

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THE vast importance of anæmia is now fully recognized. Even without having attained to a complete knowledge of the physiology of the blood, or of its exact relation with the tissues, we are in possession of sufficient information on these subjects to enable us to appreciate the importance of the deprivation of blood from limited areas (local anæmia) or of the depravation or deficiency of the mass of blood (general anæmia). We are familiar with the general results that follow anæmia, depending directly on interference with the nutrition and function of one or more organs. Among the more important structural changes are atrophy and fatty degeneration, affecting walls of vessels, or muscular, gland, and nervous tissue. Many hemorrhages and dropsies are incident to these conditions. Among the innumerable functional disturbances that follow anæmia, it would be tedious to more than refer to the digestive disorders; the marked feebleness and instability of circulation; the severe nervous phenomena; the failure of muscular strength in every part.

Nor is it possible to enumerate the infinite variety of causes that lead to anæmia, though, as I shall be compelled to allude frequently to different forms of anæmia this evening, I may be pardoned for attempting to define the several great groups into which most cases may be divided.

Anæmia is frequently *functional.* By which term we should here understand that it is due to depressing causes of a temporary or remediable nature, unassociated with severe organic disease. Such causes are profuse or repeated hemorrhages; deficient food; dyspepsia; diarrhœa, or other exhausting discharges, etc. The changes in the blood in such cases are rather of quantity than of quality; that is to say, they consist in a reduction in the total mass, or in the proportion of red globules, rather than in any change in the vital qualities of the blood. It is true that if such cases are intense and long-continued, grave secondary results (such as fatty degeneration of the heart) may follow; but if before that late stage is reached the cause is removed and proper remedies are applied, the anæmia will disappear, and health be restored.

Under the head of *organic anæmiâ* we meet with two entirely distinct classes. In one the anæmia is consequent upon organic disease of some important viscus. Such is the intense and progressive anæmia that attends fully-developed pulmonary phthisis or rapidly-growing carcinoma. It usually appears that the organic disease precedes the anæmia, and that the development of the latter depends upon the progress of the former. It is, however, uncertain how far, in such cases, the disease acts merely as any other drain would, appropriating so large an amount of albuminoids and salines as to starve the other tissues, including the blood; or how far the nutrition and vital qualities of the blood are specially interfered with by the pre-existence of some morbid principle, or by the resorption of some septic material.

But such cases differ widely from the other class of anæmias to which the term *organic* or *essential* is strictly applicable. Here we observe, as the first symptom of disease, a progressive and apparently causeless anæmia. There is not merely a deficiency of the total mass of blood or of the red globules, but there are associated changes in the structure and development of these globules, or in the number and properties of the white corpuscles. With these blood-lesions coexist grave changes in various tissues which physiology teaches us are intimately associated with the development and maintenance of the blood. At present we recognize, as belonging to this category, the medulla of the bones, the spleen, and the lymphatic glands, and in addition, perhaps, the minute centres of lymphoid structure scattered through the substance of organs. Here, then, is certainly an essentially distinct group of organic anæmias, the peculiarity of which is that there is not merely partial bloodlessness from some definite cause, but that there is a primary interference with the elaboration of the blood. Leukæmia, pseudo-leukæmia, and progressive pernicious anæmia may be mentioned as the generally recognized members of this group. In a

former communication, I have suggested the name anæmatosis (defective elaboration of blood) for this important group of affections, and I still incline to regard it as rather a desirable term, since it expresses the one essential condition which they possess in common. Undoubtedly at some future day, when the pathology of the blood and of the organs concerned in hæmatosis is better understood, more exact names can be found for the various forms of blood-lesion; but for the present, while we still are in doubt as to the mode and place of development of the blood-globules, as to their transitional forms, their exact relation with the white corpuscles, their stages of disintegration, and the place of their destruction, we must be content with a general and vague nomenclature for the diseases of the blood. Some doubt exists as to the precise significance of the changes that have been noticed in the spleen, the lymphatic glands, and the medulla of the bones in cases of anæmatosis; and particularly in regard to the latter it has been suggested that the marrow-lesions may be consequent upon and induced by the profound alterations in the blood. But, as in well-marked cases there are evidences not merely of atrophy and fatty degeneration in the elements of the marrow, but of a distinct process of proliferation of certain cells, we must probably admit the existence of an active irritative process. We may therefore for the present, as it seems to me, continue to speak of a splenic, lymphatic, and medullary form of leukæmia and of pseudo-leukæmia, or of anæmatosis.

It is needless to say that the possession of clear and accurate ideas on the nature and pathology of anæmias would vastly assist us both in prognosis and treatment. In the cursory remarks I have made this evening I have not attempted to discuss these important questions, but merely to introduce the histories of two interesting cases of anæmia, in both of which transfusion of milk was practised.

Case I.—C. D., æt. 32, was admitted to the University Hospital with extreme anæmia and intense spinal irritability, but without any organic disease. These conditions were of long standing, and had been induced by a remarkable series of depressing influences. The condition was further aggravated by the habit of using daily large quantities of morphia. She was treated assiduously for several months without any effect. Rest, generous diet, large doses of various forms of iron, gradual withdrawal of morphia, were assiduously used, but the anæmia remained equally intense, debility was extreme, and the nervous phenomena were as marked as ever. I consequently decided to have transfusion performed, and at my request Dr. C. T. Hunter, who performed all the operations referred to in this paper with his accustomed skill, introduced about f℥v milk into right median basilic vein on June 20, 1878. The cow was brought into the basement of the hospital, and the patient was placed in a room close by, so that the milk should be perfectly fresh. The apparatus consisted of a sharp-pointed canula to be introduced directly into the exposed vein, without having previously laid it open, and a small glass funnel, which was connected with the canula by a rubber tube. The apparatus was filled with milk, previously heated in a water-bath to the temperature of 100°; the canula was inserted into the vein, the funnel was held at an elevation of about twenty inches above the arm, and the milk was allowed to flow slowly in by hydrostatic pressure.

An hour previous to the operation she took twenty grains of quinia, so as, if possible, to guard against a chill. As soon as the milk began to enter, there appeared violent capillary congestion of the face and surface of the body. The eyes were injected and prominent, the lips turgid, and the whole expression wild and alarming. The respiration was labored, and an intense sense of oppression was felt, the patient clutching at the throat in her distress. While these symptoms were so severe, the funnel was lowered, and the flow of milk arrested for a few seconds, when, as she became easier, it was resumed. Eighteen minutes after the operation there was a sudden outbreak of urticaria, the wheals being large, prominent, and pale-reddish. They disappeared in a few minutes, but ten minutes later were followed by a second eruption of the same kind and of equally short duration. The changes in the pulse and temperature were carefully noted. At the time of the operation the pulse was 108; and by the time the milk began to flow in, it had run up to 120, from excitement. It then quickly fell to 108 during the entrance of the milk. But in about five minutes after the operation, violent excitement of the circulation returned, the pulse ran up to 150 and then soon fell again, being 128 when the urticaria appeared, eighteen minutes after the operation. In twenty minutes more it had fallen to 92, at which time a severe chill began. For several hours afterwards it remained at about 95.

The temperature did not vary during the operation, but when, forty minutes afterwards, the chill occurred, it rose pretty quickly to 103° F., and then slowly fell during the next six hours.

She passed a comfortable night, and the following day was in her normal state. The

urine contained neither albumen nor sugar: sp. gr. 1020.

This operation was not followed by any decided improvement in her general condition, and one week later it was decided to repeat it.

Previous to the operation she took twenty grains of quinia, so as to obviate chill. She was in an exceedingly nervous condition. A vein was exposed in the left arm and an ounce of milk thrown into the circulation. The first drachm caused a great deal of flushing of the face and capillary congestion of all the body. This was followed by a great deal of pain about her head, so that it was thought best not to allow any more milk to flow in. After the milk ceased to flow she had great pain about her uterus, with cramps about the whole pelvic organs, resulting in an immediate premature appearance of her menstrual flux. The quantity of quinia that she had taken succeeded in a measure in keeping down her temperature. She had two attacks of urticaria, but no decided chill. No albumen in the urine passed after the operation. She complained of much pain in her head during the rest of the day.

June 28.—Passed an uncomfortable night, but feels somewhat better this morning. Looks very puffy about the eyes.

June 29.—Feels much stronger and able to sit up.

July 3.—Condition seems to be improving slowly.

July 17.—It was decided to repeat the operation of transfusion. The milk was procured as on the former occasion, and the same instrument was used. About six ounces of milk were slowly thrown into the circulation, with exactly the same chain of symptoms as on the former occasion, causing a violent congestion of the capillaries and of the uterus, bringing on the menstrual flux, intense pain in the head, and in three-quarters of an hour a chill and an increase of temperature. This was lowered by quinia. There were also nausea and vomiting.

July 18.—Feels easier, but much pain in head.

In the course of a few days she began to present decided though gradual improvement. She gained in color and in strength, was able to take more nourishment, and slowly to diminish the daily amount of morphia. From this time her improvement progressed very much more satisfactorily than before.

It would appear, then, that in this case of extreme and long-standing anæmia, not connected with organic disease, but in which all other means of treatment had failed, milk-transfusion thrice repeated was certainly productive of considerable benefit. The symptoms attending the operation were severe and even somewhat alarming, but were probably much aggravated by the extremely nervous condition of the patient, and were not followed by any unfavorable results.

Case II. was an English sailor, æt. 33, suffering with intense progressive anæmia, attended with marked bronzing of the face, extreme muscular debility, palpitation of the heart, and occasional apparently causeless attacks of vomiting. Repeated thorough examination failed to discover the existence of any organic disease. There was no albuminuria. Marked remissions in the severity of the symptoms occurred. During one of these, he left the University Hospital, December, 1877, to attempt to do light work. The history of the case up to that point has been already published (*Phila. Med. Times*, 1877). As it is not essential for my purpose this evening, I do not reproduce it, and will reserve the minute account of the conclusion of the case for a future publication. He was readmitted to the hospital, May 6, 1878, in a state of extreme debility, and suffering with diarrhœa. This was soon checked, but his debility and anæmia were intense. A microscopic examination of his blood (Malassez's method), by Dr. J. G. Richardson, gave only 1,112,500 red globules to the cubic millimetre (little over twenty-five per cent. of the normal proportion): the proportion of white corpuscles to red was not increased, perhaps even somewhat reduced, being 1 to 643.

Despite absolute rest, carefully regulated diet, and the use of opium and various astringents, attacks of diarrhœa recurred, he lost flesh, and became even more anæmic. Urine still contained no albumen. There was a soft hæmic murmur over base of heart, and along pulmonary artery and in veins of neck. Intravenous injection of milk was decided on, and on June 15, f℥vi were allowed to flow into the left median basilic vein. The first effect was marked flushing of the face, with a feeling as though the head would burst. The stomach rejected its contents, and there was a strong desire to defecate. There was not any great sense of respiratory embarrassment.

The record of the temperature and pulse was as follows:

Time.	Temp.	Pulse.	
12.35 Temperature before operation	99⅘°	104	
Immediately after	99⅘°	84	
12.45	99⅘°	116	
1.00	98½°	120	Fuller and stronger.
1.15	98½°	130	Fuller and stronger.
1.20 Feels more comfortable.	98¼°	116	
1.30 Begins to feel chilly, and head aching.	98¼°	116	

Had hot bottles applied to side; took ten grains of quinia and one-fourth grain of morphia.

1.40 Had decided chill.	99⅘°	136	
1.55 Feels more comfortable. Chill lasted for 20 minutes.	100°	130	
2.10 Dozing.		123	
2.15 Thirsty.	101⅓°	114	Weak.
2.35	101⅓°	110	
2.50	102⅕°	110	"
3.05 Took 10 gr. quinia.	103°	114	
3.35 Pain in left arm and hand.	102⅘°	104	(¼ gr. morph.)

Time.	Temp.	Pulse.
4.05	101¼°	108
4.35	101⅜°	96 Stronger.
5.00 Sweating.	101⅛°	94
6.00	100⅝°	98 More volume.
7.00	100⅛°	96
8.00	100⅜°	94 Much fuller.
9.00	100⅝°	

June 16.—Passed a comfortable night; slept without any additional narcotic, and feels much stronger. Temperature, 99°; pulse, 98; urine not albuminous.

During the next few days he seemed decidedly stronger than he had been, and expressed himself as feeling better. He was able to be out of bed and to walk about a little, and apparently there was a slight improvement in the bloodless state of the skin and mucous membranes. One week subsequently, f℥viii of milk were injected into right median basilic vein.

One hour previous to the operation he took twenty grains of quinia, so as, if possible, to guard against a chill. The same instrument was used as on the former occasions, having been kept in a solution of carbolized water for twelve hours previous to use.

After the canula was inserted, the milk was allowed to flow very slowly. Time, 11.20. Pulse, 135, small and weak. Pulse slowly fell to 128 at the end of the first minute; then to 112 at the end of the third minute. Pulse, 114, and much stronger, temperature, 98⅝°, at the end of fifth minute. Temperature of milk, 100°. 11.35.—Length of operation, five minutes. Quantity of milk thrown in, eight ounces. 1.00.—Began to have a chill; temperature, 102⅜°. Chill lasted for about twenty minutes; temperature went up to 103°. Took ten grains more of quinia, and soon afterwards temperature began to fall. He passed an easy night.

June 21.—Feels somewhat stronger. Urine examined, and found to contain a large quantity of albumen, which disappeared on the second day.

June 25.—Presents a puffy appearance about the face and under the eyes, but feels quite strong.

June 27.—A week after the second operation, f℥vi fresh warm milk were injected into the median cephalic vein. The operation was attended with the same marked capillary congestion, sense of oppression and of distention in head and chest, nausea, and vomiting, as before, and was followed by a decided chill, lasting twenty-five minutes, for about fifteen of which he was perfectly blind, not being able to distinguish the slightest object. This gradually diminished with the chill. After the chill the temperature began to rise from 101¼°, and reached its maximum, 103½°, about three hours after the operation. It then began to fall, and in three hours more was down to 101½°. He complained of being very nervous, and of having a great deal of pain about his head.

June 28.—Urine contained a great deal of albumen and many phosphates. His temperature did not fall as quickly as after the former operations. In the morning it was 102°, and went up until evening, when it reached 104°. Pulse, 120. Was put on ten grains of salicylic acid every three hours.

June 29.—Feels somewhat easier. Has passed in last twenty-four hours ten pints of urine highly charged with albumen. Complains of much pain about the base of both lungs and in his right elbow.

June 30.—Quantity of urine has diminished to three pints in twenty-four hours, and contains still a small amount of albumen. No tube-casts are found. Temperature has a tendency to run high, but is controlled by salicylic acid. There is impaired expansion and resonance over lower lobe of right lung. There are also fine crackling râles of œdema over the lower parts of both lungs.

No jaundice occurred after either operation.

July 1.—Kept sinking all through the day, and had a great deal of pain about the base of the lungs, and expired about seven o'clock.

At the post-mortem examination the brain could not be examined. The heart was flabby, and its walls had undergone marked fatty degeneration. The lungs were adherent throughout; there were several small cheesy nodules at the right apex. No spots of infarction or metastatic abscesses were found, but the lower lobes were intensely congested and œdematous.

There was a small collection of pus in the right elbow-joint.

The walls of the stomach and intestines were thin, and the mucous membrane was especially thin, but without ulceration.

The liver was somewhat fatty. The spleen and pancreas were normal. The supra-renal capsules were converted into mere sacs, but had not undergone the characteristic changes of Addison's disease. The kidneys presented a positive but slight degree of thickening of the interstitial connective tissue, especially around the Malpighian bodies.

The semilunar ganglia of abdominal sympathetic nerve were normal. The marrow of the long bones presented distinct but not extreme alterations of the character found in medullary anæmatosis.

In this case of progressive organic anæmia it will be seen that intra-venous injection of milk effected no material relief. After the first operation it is true that there seemed to be a temporary improvement, but only to a slight extent; while after the second transfusion grave symptoms ensued, and it cannot be doubted that the fatal result was hastened by the operation.

The subject of transfusing nutritive fluids in cases of extreme anæmia or exhaustion has received an immense amount of attention of recent years. The inves-

tigations have been chiefly directed to the use of human blood, whether defibrinated or not. Recently Dr. T. Gaillard Thomas has recommended fresh cow's milk as a substitute for blood. The advantages that may be claimed for it are that there is no danger of embolism, as in the case of blood-transfusion, from small bits of fibrin, and that fresh milk is much more readily obtainable under ordinary circumstances. At the same time it would appear, from the limited number of cases in which it has been used, that it possesses to a considerable degree the same power as does blood of stimulating circulation and nutrition. The two cases whose histories have just been read are interesting as a contribution to the clinical study of this important question. The following points may be regarded as settled in regard to blood-transfusion:

That, excepting when direct transfusion can be dexterously performed, carefully defibrinated blood should be employed.

That the amount injected at any one time should not exceed f℥v to f℥vij, and that it should be introduced very slowly.

That severe and even very dangerous symptoms (of disturbed nervous and vascular action) are liable to occur during or soon after the operation.

That albuminuria may follow the operation.

That the transfusion of blood is capable of stimulating powerfully the circulation and nutrition for a short time, and may thus be used to save life in cases of exhaustion from profuse hemorrhage.

That it may also be employed legitimately for temporary relief in cases where extreme anæmia and exhaustion have resulted from a serious but curable functional disease, in order to gain time for curative measures. As illustrations, I may cite the instances of intense dyspepsia, gastric ulcer, chronic diarrhœa or dysentery, hemorrhage in typhoid fever.

That in cases of incurable disease, such as advanced pulmonary phthisis, cancer, or anæmatosis, transfusion of blood exerts no curative effect, and the attendant risk is too great to justify its performance.

In an article on Progressive Pernicious Anæmia (*American Journal of the Medical Sciences*, October, 1875), I described a case in which transfusion of blood was performed at an advanced stage of that disease. The unfavorable result agreed entirely with the statement above made. I am indeed inclined to believe that the risks of transfusion are greatest in cases of pulmonary phthisis, where the respiration and pulmonary circulation are impeded, and of organic anæmia, where the mass of blood has been reduced, and where the heart is weak and probably fatty.

In comparing the effects of transfusion of milk with those of transfusion of blood, it may be concluded from the experiences already recorded:

That the milk must be just drawn from the cow, and be kept at a temperature of about 100° F.

That the quantity used should not exceed f℥vi; since it has been seen that even much smaller quantities than this may produce severe symptoms.

That these symptoms appear to be quite as severe and of the same character after transfusion of milk as after that of blood, although the danger of embolism is excluded to a great extent.

That albuminuria may follow the operation, though this has been actually shown to occur only in a case where slight disease of the kidneys existed.

That transfusion of milk undoubtedly exerts a powerful and instantaneous stimulating effect on the circulation and on nutrition, and may be used therefore instead of blood in cases of profuse hemorrhage, etc.

That it is still doubtful whether, in cases of intense anæmia connected with serious but curable disease, transfusion of milk, although doubtless of much service, produces as lasting an effect as is obtained when blood is used.

That the severe symptoms following the operation, and the possible dangers attending it, render it improper to perform it in such cases until all other remedies have failed.

That in cases of serious organic anæmia the operation may hasten a fatal result, and that consequently, as its beneficial action, even if the operation is most successful, can only secure a temporary improvement, its performance is not justifiable in such conditions.

A LEPERS' hospital is about to be established in the Spanish province of Alicante. In the province of Valencia there were last year 116 cases of leprosy, 71 of which proved fatal.

NOTES OF HOSPITAL PRACTICE.

COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK.

CLINIC OF PROF. ALONZO CLARK.

(Reported for the *Philadelphia Medical Times.*)

SUBACUTE PERICARDIAL EFFUSION—IMPACTION OF FÆCES IN THE COLON.

GENTLEMEN,—Our first patient to-day is a young man, who tells us that five weeks ago he had some sort of a febrile attack, which he did not seem to mind very much, but that about a week after he was first taken ill he became a good deal worse, and suffered great pain in the left side of the chest, extending from the region of the heart up to the shoulder. He was in bed about eleven days altogether, after which his physician encouraged him to get up and go out. He denies that he had rheumatism either at this time or at any former period. As a result of the attack that he has had (which was undoubtedly one of pericarditis), he still suffers a great deal from shortness of breath, and he says that he had to get a friend to assist him in coming up the stairs here, and yet was obliged to stop and rest several times on the way up. He is also entirely unable as yet to lie on the left side. This seems to have been an exceptional case, as far as the pain was concerned, as pericarditis is ordinarily by no means a painful affection.

When the patient is stripped, the first thing that attracts the observer's attention is a marked enlargement in the region of the liver, and to that we shall have to turn our attention presently. The left breast stands out considerably more prominently than the other one; but the apex-beat is undisturbed, though the impulse is somewhat feeble. The heart is beating pretty rapidly; but the sounds are quite indistinct. I do not detect any murmur; but still a murmur might exist without my hearing it, because the sounds themselves appear so muffled and distant. I also practise auscultation behind here, for the reason that once in a while we meet with a pericardial effusion which compresses the lung back of it to such an extent as to cause a certain amount of condensation in it, which gives rise to more or less dulness on percussion and bronchial breathing. A medical friend of mine was recently deceived by such a state of affairs, so that he thought he had a case of real pneumonia to deal with.

As indicative of pericardial effusion still remaining, we have an increased area of dulness in the pericardial region, and, at the same time, marked indistinctness of the apex-beat. If the increased area of dulness were due to hypertrophy, instead of this condition, we would have the beat more distinct, instead of less so than natural. But in addition to the above there ought to be a sign which is entirely characteristic, if there is pericardial effusion here, viz.: the area of dulness would extend up to the second intercostal space. Now let us observe if this is really the case. You notice that when I make percussion as high up as this, somewhat to the left of the median line, I get well-marked resonance; but that when this is done near the latter, there is found to be dulness all the way across the second rib and into the first interspace. The explanation of this is found in the pear-like shape of the pericardial sac.

I have already called your attention for a moment to a swelling of some size in the region of the liver, and I think it would be well now to make some examination as to its character.

In the first place, careful percussion shows us that the line itself is not enlarged, and we must, therefore, look for some other cause of the tumor present. What we do find is a band of dulness, perhaps four inches in width, extending across the epigastrium, and, from its position and outline, I have but little doubt that it is the colon distended with fecal matter. On palpation, the mass can scarcely be said to be actually hard, and yet it does not yield much to pressure. If this is really the cause of the swelling noticed, a couple of ounces of castor-oil will probably cause it to disappear. In one case of this kind, occurring in the person of a medical friend of mine, I kneaded the parts with my fingers until I got the fecal mass started, after which there was an evacuation of nearly a bucketful of the intestinal contents.

Aside from the effusion, there is no great amount of heart-disease here. The remarkable part of the case is that the patient had at first, and still has, so much pain; for he still continues to suffer in this way. In nine cases out of ten there is no pain. Another point of interest about it

is the unusually large pericardial effusion. The latter has now lasted so long that it will probably become chronic. By way of treatment we should try first to set the kidneys at work so actively that the effusion may all be carried off by their means. Should we fail in this (and I think it not at all unlikely), we shall have to resort to puncture of the pericardium. This is not a very old operation, but it is still always reserved as a last resort, on account of the danger of wounding the heart. In quite a number of instances it has been done very successfully, and it is certainly an altogether justifiable operation.

In chronic pericardial effusion the fluid, as we would naturally expect, is almost always of a sero-purulent character. I once had a case in which a gallon of it was found contained in the pericardium at the autopsy. It is recorded in the books of the New York Hospital, and is the only one that has ever been reported, as far as I know, in which there was such an enormous amount of fluid.

TRANSLATIONS.

Cure of Onychia Maligna.—Dr. Gaetano (*Jour. des Sci. Méd.*, 1878, p. 463; from *Il Morgagni*) was called to a little girl 10 years of age who had suffered horribly for six months with peri- and subungual ulceration of the right index finger. Having softened and raised up the nail as much as possible, he dropped a concentrated solution of morphia upon the sore, with which he kept it in contact a quarter of an hour. He then covered the diseased part with very finely powdered nitrate of lead, and enveloped the finger with a bandage. The pain was almost immediately relieved, and the patient slept soundly that night for the first time in a long period. The bandage was removed at the end of five days, and the ulcer was found about one-half healed. The application was repeated, and by the end of five days more complete cicatrization had taken place. In two other cases results as favorable were obtained by Dr. Gaetano, the applications being made more or less frequently as the case seemed to demand. x.

Pulmonary Emboli in Tumors of the Uterus or Ovary.—A. Sevestre (*Le Progrès Méd.*, 1878, p. 707) reports a case of ovarian tumor in which death occurred from embolism, and adds some reflections upon the case in connection with others reported previously. His conclusions are as follows:

1. Tumors of the pelvic cavity, even where benign, may favor the production of thromboses in the crural veins by compression, and the clots formed in this neighborhood may be the point of departure of pulmonary emboli.

2. The accidents produced by pulmonary emboli may subside, and life may persist even where considerable portions of the pulmonary artery are obliterated.

These facts, adds M. Sevestre, should not be lost sight of; for although pulmonary emboli may be upon the whole rather rare, considering the great number of intra-pelvic tumors, yet they are of importance on account of their gravity. x.

Iodic Purpura.—M. Labat reports the case of a woman suffering with chronic rhèumatism, who took several doses of iodide of potassium, amounting in all to about fifteen grains. Within twenty-four hours a petechial eruption showed itself, presenting the characters of iodic purpura as described by Fournier, namely: 1. The eruption was purely petechial, without other lesions. 2. It was seated upon the legs alone, and upon their anterior aspect. 3. The eruption was abundant, non-confluent, composed of small maculæ, and without concomitant symptoms, local or general. 4. Its evolution was rapid; it had entirely disappeared by the end of four days. 5. It was produced immediately upon the ingestion of a very small dose of the iodide. (*La France Méd.*, 1878, No. 72.) x.

Poisoning by One-Third of a Grain of Corrosive Sublimate.—Dr. Kobryner (*Bull. Gén. de Thérap.*, v. 2, 1878, p. 75) gives the case of a young man of 21 under treatment for syphilis. Tiring of the too stringent regulations of his physician, and hoping to make a speedy cure, he took without medical sanction two pills of corrosive sublimate containing one-sixth of a grain each. A little later the man was taken with intolerable burning pain in the stomach and abdomen, and vomiting. His pulse became small, his extremities cold, and face pinched. There was no salivation. He was ordered iron by hydrogen (which was vomited), together with albumen. For ten hours the toxic symptoms persisted, but then began to diminish, and the patient recovered. x.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, NOVEMBER 9, 1878.

EDITORIAL.

DR. GRISSOM'S CHARGES AGAINST DR. HAMMOND.

PERSONALITY in journalism is to be reprobated, but it is possible for a physician to attain such eminence that his character is no longer a private but a public possession, the whole profession being honored or dishonored with him. Such high station certainly has been reached by Prof. Hammond of New York, and as certainly serious attack upon his character is a matter not of private but of public moment. This much of apology we offer for noticing a present controversy, if the preferring and rebutting of criminal charges can be called a controversy. In a paper entitled "True and False Medical Experts," and more directly in subsequent writings, Dr. Grissom unskilfully, and with much of very objectionable matter, makes certain charges against the New York neurologist. Omitting the minor of these charges, the more serious may be stated succinctly as follows:

First. In order to clear McFarland, who shot Richardson, Dr. Hammond stated on the witness-stand "that the insane are very persistent in their revenge. I have known insane men occupied with the idea of killing their keeper for years, and finally do it;" whilst in order to convict Montgomery he stated that "deliberation takes away the idea of an insane act."*

Second. That to insure the execution of Reynolds, Dr. Hammond declared under oath, "The disease [epileptic mania] is of remarkably short duration. There is not a case on record where it has lasted fifteen minutes;" whilst in order to convict Montgomery he had said, "when an epileptic has suffered from an attack, the mental disturbance continues, frequently, several days."

Third. That in the Johnston will case he gave testimony which was scientifically false, although necessary for the breaking of the will, and† that it was proven that he was to receive five hundred dollars for his testimony, and a contingent of twenty-five hundred dollars if he succeeded in breaking the will.

Fourth. That in the Montgomery case he one day gave one opinion and the following day an opposite one, having been seen in the mean while by the interested counsel.

Of course a wicked man may make a true accusation, and a man of good repute a false one. Nevertheless, the gravity of a charge in a case like the present is enhanced by a previous character for ability and probity on the part of the accuser. Dr. Grissom is a prominent chemist, of good repute among his associates, and he is a member of the *Judicial Council of the American Medical Association.* Under the circumstances it seems inconceivable but that he believes to be true what he asserts. To prefer such charges falsely, or even lightly, against a physician of Dr. Hammond's renown, would be professional suicide.

These considerations in no way prove the truth of the accusation, but they do remove the transaction from the arena of mere personal dispute and quarrel, and entitle it to rank as a semi-official citation of the asserted culprit before the profession, by one selected by the profession to judge of its ethical and moral questions. This view of the case is further strengthened by the somewhat defiant offer (in response to Dr. Hammond) of Dr. Grissom to prove his charges before a jury and to deposit suf-

* We must refer to the pamphlets of Dr. Grissom to show how these various assertions were necessary to the escape or conviction of the accused.

† That there are no lucid intervals in monomania.

ficient bonds to cover any probable award of damage.

Under these circumstances the case assumes a most serious aspect. There is no medical man in these United States that could afford to allow his reputation to rest for a day in this position.

There is no medical body meeting in this country more reputable than the Association of the Superintendents of the American Institution for the Insane. At the last meeting of this body a resolution was offered and warmly pressed by three members, condemning the action of Dr. Grissom. It was, however, defeated, we believe by an overwhelming majority. This is, of course, a virtual endorsement of the charges. So that, as the case now stands, the said charges have not only been publicly preferred against Dr. Hammond by a member of the Judicial Council of the American Medical Association, but have also been endorsed by the National Association of Specialists connected with the subject.

The reply to all this on the part of Dr. Hammond is to be found in two pamphlets, which may be analyzed as containing—*first*, various counter-charges against Dr. Grissom, with a flood of personal abuse; *second*, the assertion that the Association of Superintendents are endeavoring to destroy him (Dr. Hammond) because he has been an advocate of the non-restraint system of treating insanity; *third*, the partial denial of some of the charges, but no straightforward, complete denial of them, and no attempt to disprove the detailed statements and documentary evidence offered by Dr. Grissom.* A simple denial from Dr. Hammond of the accusations against him would have deservedly had great weight with the profession; but his "open letters" are such a mixture of seeming evasion, school-boy wit, puerile abuse, and disgraceful vulgarity† that we think they must have astonished his warmest friends. They certainly do not meet the needs of his cause at all. The profession will be very slow to believe his accusations against the Superintendents' Association, and it is he, Dr. Hammond, and not Dr. Grissom, who is at the bar of public opinion. If Dr. Hammond would retain any of the respect of the profession, he must make a brief and pointed but detailed denial of the charges, and follow this by citing Dr. Grissom either before the Judicial Council of the American Medical Association or before a jury in a libel suit. The professional tribunal is, to our thinking, the proper one; but if Dr. Hammond desires to recoup himself for the expense and annoyance to which, if innocent, he has been unnecessarily subjected, the civil court is open to him. Of one thing he may be certain,—that by his own replies he has done much to turn against himself the current of professional opinion, and that the circumstances of the case imperatively demand decisive action on his part.

A REPLY has been received from Prof. Martin to our editorial upon Johns Hopkins University. It is in type, but has been crowded out of the present number, and will appear in the next issue.

* It is but fair to state that the more serious of the counter-charges are disproven by documentary and other evidence by Dr. Grissom.

† To justify this assertion, we quote in full the latter part of the concluding paragraph of the second open letter. *Ex uno omnes disce.*

"A distempered and snarling cur has nobler mental and moral qualities than you; the vibrio that wriggles in decomposing filth is higher in the scale of existence; the foul bird that defecates in its own nest is less odious; the wretch who, actuated by perverted instincts, revels in nastiness and abominations, is not so execrable; the monster who insults the mother who bore him is more entitled to human sympathy. Whether you receive your dues in this world or in the next is, as I have said, a matter of no consequence to me; but if a being as grovelling, hypocritical, fraudulent, and polluted as you could, through any means, escape the punishment to which his crimes entitle him, then I should lose faith in the justice of an omniscient God, and wonder for what purpose hell was instituted. Go, graceless and irreclaimable quack, hardened and infamous blackguard, sane or insane, knave or maniac, and regale your devious fancies by the contemplation of your own depravity."

CORRESPONDENCE.

LONDON LETTER.

THIS month is marked by the opening of the winter medical session at the various schools. It is the rule for the session to open with an introductory address, though in one or two of the larger schools the address has been done away with; it might be interesting to know why. It is just possible that the addresses at the large schools might not be so stupendously superior to those given at the lesser schools as the authorities of the great institutions might desire; but comparisons ever partake of an odious character, and even medical school addresses might not escape entirely. The most remarkable addresses were that of University College and that given at the Middlesex. The address given at University College was by Prof. E. Ray Lankester, the son of the well-known late Coroner for Middlesex, who is Professor of Zoology in the college. He is an Oxford-educated man, and is not a medical man at all. His utterances on the relation of medical teaching to universities are then all the more deserving of our attention and thought. He speaks from an outside stand-point, which makes his remarks all the more incisive from their dispassionate and unselfish character. He pointed out with some feeling how theology at the English universities had succeeded in strangling the medical element, especially at Oxford, where the semblance even of medical teaching has disappeared. A professor of medicine gives no lectures: when the commissioners, inquiring into the funds of our old universities in 1854, resuscitated Linacre's forgotten gift to medicine, a medical man was elected to the chair, so that physiology should be taught. "But," says Prof. Lankester, "such is the perversity of fate in Oxford, he continues to occupy the chair, but does not occupy himself with physiology." It would seem but too clearly that the forces in action at Oxford are but too potent; they are strong enough to eat the earnestness and professional enthusiasm out of such men as the professor of medicine and the Linacre professor of anatomy and physiology; neither of them wanting either in intellecual power or in moral backbone. That upas-tree shade which theology throws over all other teaching at Oxford is too much for all the attempts at life in anything bearing on medicine. The late Henry Thomas Buckle held some very strong opinions about the guiding principles of our two great universities, which have made his writings unpopular, if not unknown to the graduates and undergraduates of these two universities; and he objected particularly to those of Oxford. It would seem that, either by hard fate or by human perversity, Oxford continues to manifest the most rooted objection to any knowledge acquired by the natural man. Cambridge, with Prof. Humphrey, and still more Michel Foster, is working, and is no longer a mutilated university lopped of one of its most important faculties.

As to the capacity of these two towns to teach medicine, he contrasted their populations with those of some German university towns, and showed that with smaller populations some small German university towns were doing excellent work. It was the want of willingness, not the want of facilities, that placed the English universities where they were. Oxford has its Radcliffe Infirmary, with no less than 187 beds, and does nothing. Oxford is too far gone, evidently, for the sense of shame to arouse the present staff of the Radcliffe Infirmary into activity or life.

Having presented a clear résumé of what had been done at Oxford with the funds left —and ample funds, too—for the prosecution of medical study, he turned his lens upon London, and lighted up some matters with a ray which showed some queer musty forgotten corners. When certain persons succeeded in founding the University of London, they raised £153,000, with which they set it going. But there existed in London misappropriated wealth which ought to have been devoted to medical teaching to the extent of half a million of money. When Sir Thomas Gresham died, in the sixteenth century, he left behind him some most valuable property in the city of London. "He directed that seven professors should be appointed and lodged in his house, and that liberal stipends should be paid them from the proceeds of his estate. The professors included one of astronomy, one of mathematics, and one of medicine. The estate bequeathed for the purposes of this college is now estimated to be worth three million pounds sterling. At the least, one-seventh of this belongs to medicine,—nearly half a million of money. Is this money paid over by the trustees in any way in support of medicine or medical study? I regret to say it is not. By a conspiracy between the Crown and the City Corporations, Gresham's property was in the last century fraudulently diverted from its legitimate objects. A large part of the estate, and old Gresham House, were handed over to the Crown in order to build on the site an excise office. The city authorities received a consideration in the form of certain privileges as to the raising of dues. The most astonishing feature about this transaction is that, in form at least, Gresham's College still exists. The trustees feel so safe in their legalized outrage that actually there is in the city of London a lecture-theatre at the back of the premises of the Mercers' Company; and there, in rotation, the Gresham professors, who are nominated by the trustees and are paid at a little more than the nominal rate directed by Sir Thomas Gresham, give formally and unheeded their

annual course of lectures." This is a pretty strong expression of opinion on the part of young Prof. Lankester; but who ever hears of the Gresham lectures in medicine? The present Gresham professor of medicine is little known as such; his reputation is associated with a consumption hospital, and his published Gresham lectures relate to the elevated health resorts of the Southern Hemisphere, and a small brochure on Coughs, often seen on the bookstalls of the great metropolitan railway termini. Such, then, is the present fallen state of medicine in the city of London. Medicine is poor, is ununited, can readily be cuffed with impunity, and has been shamelessly despoiled in the past: what are its prospects in the future?

Dr. Arthur W. Edis, at the Middlesex Hospital, delivered an address devoted to the consideration of his own department,—obstetrics. He pointed out how this department had been neglected in the past. "Two circumstances," he said, "have contributed more than any other to depreciate the study of midwifery: one is the imagined facility with which it may be practised, the other is the want of a distinct obstetric board or centre of education." Yet he pointed out forcibly how sudden were many of the emergencies of obstetrics, how little time for thought they offered, and how necessary therefore it was that the subject should be one with which the medical mind was thoroughly familiar. He said, "You are given no time to seek information: you will become embarrassed and incapable of undertaking the principal duty you have to perform. In failing to secure the safety of your patient, need I tell you the painful situation, the unenviable feelings, of the practitioner who, through his ignorance or his neglect, has snapped asunder the dearest tie of society,—who has converted a house of joy and anticipated congratulation, where perhaps a happy result was confidently promised, into a house of mourning, in which a desolate husband and an orphan family have to pay the penalty of his presumption and neglect!" He then showed the sins of the Royal College of Surgeons of England, with its imperfect diploma, which, however, permits its member to practise every department of medicine; they licensed men to practise, yet failed in their duty to the public by neglecting to see if they possessed the requisite information to make them safe advisers, in whom the public could place undoubting confidence. He then referred to the education of midwives, and pointed out the dangers to which so large a portion of the wives of the working classes are exposed through the ignorance of self-dubbed midwives, insisting upon the more complete education of such women.

He then proceeded to consider the effects of pregnancy upon the newly married wife, of the rapid and often passionate precipitation of the maiden into motherhood. "Physiological conditions," he said, "pass by an almost invisible series of transitions or degenerations into the domain of pathology, almost justifying the dictum of Mauriceau, that pregnancy is a disease of nine months' duration. In any case the progress of the pregnant woman should be carefully watched: the medical attendant should be expected to visit her from time to time during the whole course of her pregnancy, in order to see that everything is progressing towards a successful delivery, and to remove, if possible, any condition which is likely to interfere with this. Many a case of serious uterine disorder would thus be discovered and remedied before the evil had been allowed to go on to a dangerous extent. What would we think of a trainer who allowed a pedestrian, a sculler, a runner, or an athlete, to undertake a feat that would tax his utmost efforts, necessitating stamina, strength, speed, skill, and endurance, without many preceding months or weeks of training and supervision? And yet we allow the wives and mothers intrusted to our care to go on in ignorance of the necessity of strict attention to hygienic and physiological laws in order that they may with safety bring forth their offspring." Of course it may be objected that the whole training of women is such that the young wife would scarcely feel inclined to speak of troubles connected with her first pregnancy, and would instinctively prefer to attribute them to the natural changes produced by impregnation; but, by so doing, a great deal of mischief does go on, as Dr. Edis says. Among these are cases of retroversion of the gravid uterus, which becomes impacted in the pelvis, with all the long array of troubles which follow: if not attended to early, the most serious consequences may follow, and the efforts requisite for replacement be much more energetic than would be the case if the patient were seen and attended to earlier. The dangers of a miscarriage are often greater than young couples imagine, and many such cases are passed over as trivial which are found to have far-reaching consequences. "Many a valuable life has been sacrificed, and many years of suffering and unhappiness produced, in consequence of making light of a miscarriage, either wilfully or ignorantly. Even should the patient recover from the immediate effects of the miscarriage, the severe hemorrhage and suffering, the anxiety, and confinement to the house, call forth inevitably any latent disposition to tubercle or other hereditary disease; and while sorrowing for the life thus prematurely cut short, or vainly regretting the blighted hopes of a fruitful marriage, the knowledge that this depended merely upon a neglected miscarriage will prove no solace to the friends or comfort to the sufferer." Dr. Edis hinted that in the case of a young wife who died recently after marriage, and whose death excited the sympathies of nations, the death attributed to "nervous gastric fever"

was really due to "hemorrhage and septic mischief, the result of an overlooked miscarriage." He then alluded to the possible treatment of extra-uterine fœtation if the symptoms only attracted a sufficient attention to lead to a correct diagnosis in time: to the detection of pelvic deformity calling for the induction of premature labor, by which most serious danger may be averted, which would ensue if the woman were allowed to go unheeded and unsuccored to her full time. How often, he said, were obstetricians called to a case of uræmic convulsions in the gravest stages, where a whole train of symptoms—headaches, drowsiness, loss of memory, even œdema of the feet and hands, and other well-marked precursory symptoms of albuminuria—had existed for weeks past, but no practitioner had been called in! At other times the patient is permitted to reach her hour of trial after months or weeks of ill health, and has to meet the ordeal as best she may, when by careful attention to various matters she would have been fairly well when the time of the ordeal came to her. Dr. Edis eloquently described the sudden accidents which may convert a house of gladness into one of mourning where a birth is expected. He then referred to the imperfect education of the medical student in practical midwifery, and the loss of life to mothers and children resulting therefrom. He related a case of a lady who had studied at Cambridge for three years and distinguished herself at the University examinations and was appointed principal to a training college. She was confined at 3.20 A.M., but it was not till 5 A.M., when she was all but moribund from profuse and continuous flooding, that any suggestion was made as to removing the placenta. It was removed in order that "the woman should not die with it in her." Truly might Dr. Farre observe, in the Registrar-General's report, "Such fearful cases should be judged by the Medical Council."

The opening of the medical schools has evoked a very well written leader in *The Standard*, a conservative paper of repute, which interests itself in the profession. It starts by stating that the student of to-day is the practitioner in whose hands the lives of the next generation will be placed, and therefore it is satisfactory to know that the class of man, or youth rather, who is coming forward as the medical student is of better quality than of yore. It is rather hard on the medical students of the past to say that "they seemed to imagine that a course of reckless dissipation was a proper part of their training." Certainly a medical student of the old school did make some experiments upon himself as to the effects of alcohol, and the risks of certain contagious affections, with probably such good results that they helped him to become "that type of respectability,—the family doctor," as *The Standard* puts it. It assuredly is a pity that certain knowledge of humanity and human beings can only be bought with a price. A medical man is brought into contact with humanity in some of its more curious aspects, and a certain personal experience is a very useful thing under these circumstances; but then the only means by which such knowledge can be acquired is such as to be very shocking to—spinster aunts, for instance. But a student nowadays is kept pretty well at work, so that he cannot devote the first winters of his student course to the examination of the darker side of humanity and then pull up and cram his third winter and make a good appearance at the examination-table. The old plan of not examining a man till the end of his third session did a great deal of mischief. Sharp men could dissipate for two winters and pass their examinations when the time came; but for others not equally gifted the examination-day came and they were found wanting, and very often their prospects in life were blighted thereby. The regular course now, including class examinations, keeps a student at work all along his career, and especially during his first session, when the temptations of his new life are strongest. The chronic student, who never succeeded in passing, but who kept on with some vague hope of one day being enabled to study and pass, is a feature of the past that can well be spared. On the other hand, *The Standard* very justly remarks "that the system of medical education which is most in favor in the present day is very apt to lead the student to the conclusion that the object of his study is to pass an examination, more or less difficult, as the case may be; and not, as it should do, to teach him that he is being prepared for a life-long practice of a difficult profession, not merely to pass a crotchety examiner by the aid of a clever coach." This is rather severe on the present form of medical teaching; but, as the late Henry Thomas Buckle wrote, "one has yet to learn that the disagreeableness of a fact can be accepted as a proof of its falseness." Further, *The Standard* holds that the tendency of the merely hospital-taught man, when brought into contact with private patients, is to treat them as hospital patients are summarily treated, and consequently to "the inevitable result of having his services declined in the future." The Britisher has a decided objection to being the subject of "learning experience," as an old pauper lady once remarked to the writer; and when a young man with several conspicuous gaps in his culture, social and other, commences to learn his experience at the expense of the patient (in several directions), the Anglo-Saxon instinct leads pretty surely to the conviction that a more matured experience is perhaps the most judicious thing to invest in. The old-fashioned plan of apprenticeship and familiarity with the sick-room as well as with the hospital ward is advocated by this lay writer, and it is to be

hoped the profession will profit by his words. The leader concludes with some severe strictures upon female medical students, to whom evidently the writer is very decidedly opposed. He says that "any woman who obtains a medical diploma must undergo a great deal that is unpleasant in tuition;" nay, more, "the idea of a woman engaged in the necessary work of the dissecting-room, or taking her part in certain common operations with men, is enough to cause a shudder in any man who has a wife or sister." This is very terrible, but somehow medical women do not seem to be demoralized by their professional education. The Anglo-Saxon view that the female mind is built up in such a flimsy manner and of such rickety material that a small acquaintance with certain knowledge means collapse and utter moral ruin, is now somewhat antiquated and is not likely to survive much longer. There is such a thing as a clean knowledge and an unclean ignorance; and this holds good especially of women.

The growing use of the microscope as a means of investigating the nature of the fluid in ovarian cysts, and so of settling the question of operation or no operation, is now attracting much attention. A paper by Dr. Thomas Keith of Edinburgh, whose skill and success are only second to Mr. Spencer Wells's on the subject of ovariotomy, was read at a suburban medical meeting lately. On returning home with Dr. Matthews Duncan and Professor Lister, the conversation ran on to the subject of the diagnosis to be formed from microscopical investigation of the fluid to be obtained by tapping. Both these great authorities were in agreement that when there is a certain amount of peritoneal fluid as well as an ovarian cyst, there is a strong probability of the fluid containing cancer cells, and that when such cancer cells were discovered it was most undesirable to perform ovariotomy. The growth of villous cancer over the peritoneum generally is much increased by the removal of the cyst and the irritation set up by the operation.

The information has just reached me that I am now connected with the profession in the United States, having been elected an Associate Fellow of the College of Physicians of Philadelphia. Such an honor is very gratifying, and association with the medical profession in the United States of America is ever agreeable to the writer, for the advance of medicine in the direction of therapeutics lies now mainly in American hands,—or perhaps, rather, heads. J. MILNER FOTHERGILL.

ADULTERATION OF SANTONIN.—Santonin is said to be adulterated with boric acid. The test is: ignite the specimen, dissolve the residue in boiling water, allow to crystallize, when boric acid separates, and is recognizable in the usual manner.

PROCEEDINGS OF SOCIETIES.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

AT a conversational meeting held October 9, 1878, Dr. Henry H. Smith, President, in the chair, forty-eight members were present. The following new members were introduced: Drs. Russell H. Johnson, T. H. Bradford, T. H. Seyfert, Charles Wirgman, and R. G. Curtin.

The paper of the evening was read by Dr. Wm. Pepper, on "Organic and Functional Anæmia, and Milk-Transfusion as a Remedy" (see page 54), containing the history of two cases of profound anæmia, in which fresh cow's milk had been injected into the veins with favorable results.

The chairman inquired as to the character of the respiration, as it might be anticipated that caseous deposits may form infarction in the lungs. Dr. Thomas, of New York, apparently considers milk to be as harmless as chyle, but, since it has not undergone digestion, this could scarcely be the case.

Dr. Pepper, in reply to a question from the chair, declared that it was difficult to state whether the benefit following the milk-injection was due to the actual amount of nourishment contained in the quantity transfused, or to the stimulating effect upon the heart and vessels from their mechanical distention by the warm fluid, just as salt water has been injected in the treatment of cholera. The constitutional effects produced are certainly out of all proportion to the small amount of milk injected. In the second case mentioned in the paper there was more nourishment lost in the albuminuria produced than was contained in the milk employed.

In a case of profound, acute anæmia following hemorrhage, there are no such great disturbing elements as are present in cases of long-standing disease. We would have in the former condition, first, the nutritious value of the injection; second, the influence upon the heart itself; and, third, the stimulating effect upon the whole system. In such cases, intravenous injection of milk or of blood will enable a patient to tide over the period of lowest depression until reaction occurs. Many of the most brilliant cases have been of this character, and, while it is undoubted that the operation has saved life, it is probable that some of the subsequent symptoms are to be regarded as due to natural reaction and not directly to the transfusion. In these cases also, it would seem that there is less danger of the occurrence of grave symptoms after the operation than in cases of long-standing disease, especially where there is implication of the heart or lungs.

In reply to Dr. O'Hara, it was admitted that for a complete study of these cases, not

only the entire daily excretion of urine and its constituents should be recorded, but the patient should be kept in a Pettenkofer chamber, and the total amount of carbonic acid, sweat, and other excretions be accurately determined before and after the operation.

Dr. Chas. T. Hunter said that in the operations mentioned in the paper, and in others that he had performed in private practice, he had made a preliminary incision obliquely across the vein about half an inch in length, dissected the vessel free from the surrounding cellular tissue, and raised it on a grooved director, before introducing the canula, which then slipped in without any difficulty whatever. There is not the slightest need of transfixing the vein. As the canula penetrates the vessel it fills its lumen completely, so that no room is left at its side for the admission of air. There is an advantage in using the sharp-pointed canula, as it enters the vein directly, while without it a perceptible interval must elapse between the opening of the vein and the introduction of the canula.

The isolation of the vein is required from the fact that it is almost impossible to thrust the instrument through the skin directly into the vessel. In one operation performed for the transfusion of blood, he had made seven punctures before entering the vessel, and had transfixed the vein several times in attempting to perform it without the incision in the skin. This he considered unobjectionable and harmless; as the wound generally heals by first intention, it does not add to the pain or the risk of the operation.

The diameter of the canula is a little less than two millimetres, being rather smaller than either the median cephalic or the median basilic vein, the latter of which he generally prefers to operate upon when he can have a choice.

The material of which the canula is made is steel, nickel-plated. They are made by Mr. Gemrig, who, at his request, made one with a point quite sharp, which he had used with complete satisfaction. The rubber tubing is about four millimetres in diameter and about sixty-one metres (twenty-four inches) long. A funnel holding about four ounces is attached to the opposite extremity of the tube. The milk is first received in a can surrounded with water at a temperature of 100° Fahr. The fresh milk is then strained through metallic gauze into the funnel, and is made to flow through the tube by elevating the funnel. The last canula which he had made has a stop-cock, so as to control the flow of milk. When the stop is turned off, the canula remains filled with milk, retained by capillary attraction: it does not run out even when the tube is held vertically.

Transfusion of milk was performed with success by Dr. Thomas, of New York, with striking results, as reported in his article in the *New York Medical Journal* for May, 1878. On the 31st of last May, Dr. W. E. Bullard, of New York, had occasion to perform transfusion in a case of gastric ulcer prostrated by repeated hemorrhages both by the mouth and rectum. Dr. Bullard decided to inject milk into the circulation, and selected the cephalic vein. He had some difficulty in introducing the canula, but succeeded in throwing in seven ounces of cow's milk. The patient recovered, but the operation was followed by angioleucitis, extending up and down the arm, and a number of abscesses resulted. This inflammation the operator attributed to the escape of milk into the cellular tissue around the vein. This need not happen if the vein is isolated and directly penetrated by the sharp-pointed canula. Performed in this way, it becomes one of the simplest operations in surgery.

In a noted case of typhoid fever, that attracted considerable attention this summer, where convalescence was prevented by repeated hemorrhages from the bowels, the transfusion of milk was performed with marked success. On the fifty-sixth day of the illness the patient was lying in an unconscious condition, —pulse imperceptible, skin cool and clammy, respiration sighing. Several physicians who were in attendance considered the patient moribund. At the consultation, Dr. Elwood Wilson had suggested transfusion of milk, and a goat had been obtained in preparation for the emergency. With the patient in the condition described, some difficulty was experienced in finding a vein, as the vessels were nearly empty, but he made no resistance through the course of the operation, nor gave any signs of pain. Five and a half ounces of the fresh goat's milk were slowly injected into the right median basilic vein. Decided improvement was observed in his condition. In this case none of the physiological manifestations previously referred to this evening were present. No bad symptoms followed, but the result was so favorable that the next morning six ounces more of the milk were thrown into the corresponding vein in the left arm. The next day the vessels were filled with blood, his pulse was stronger, he took nourishment well, and had fewer passages. He was fully conscious, and recognized his attendants, and wondered why there were so many physicians around him. In three or four days, during which small hemorrhages occurred from the bowels, he was again reported dying, with a temperature of 106°. Transfusion was again performed, and ten ounces injected, but he died immediately after the operation.

The incisions in the early operations healed by first intention, and on the fourth day the blood was flowing through the vein, the wound having entirely healed. It is not necessary to apply ligatures to the vein above and below the puncture, as has been practised by some operators, for, as is seen in this case, the

wound closes directly and leaves the vessel pervious.

Dr. J. C. Wilson, referring to the suggestive questions of Dr. O'Hara, stated that he had recently seen the statement in a paper by Lichtheim, on "Paroxysmal Hæmaturia," in Volkmann's series, to the effect that the urine contained large quantities of hæmoglobin after transfusion of lamb's blood or that of man. Ponfick, by a series of observations, had arrived at the conclusion that the red globules of the transfused blood were rapidly destroyed after injection into the veins, and that their coloring-matter appears in the urine. It appeared to the speaker that this rapid destruction of blood-cells might afford an explanation of some of the physiological disturbances that are said to follow the operation. Milk, being free from this serious objection, would seem to possess in this respect a further advantage over blood for purposes of transfusion.

Dr. Fredk. P. Henry said that the division of anæmias into functional and organic, although perhaps the best classification that with our present knowledge can be made of these affections, is yet by no means accurate; for if, as some do, we regard the blood as a tissue, every anæmia, involving, as it must, a change in the proportions of the blood-constituents, is organic, or, what is a preferable term, structural. On the other hand, there are many profound anæmias which, in that they are not recovered from, fully deserve the name of pernicious or malignant, in whose causation the blood-making organs take no direct part. I may refer, for example, to the anæmia that is so often the first, and perhaps for a long time the *only*, manifest symptom in the form of Bright's disease whose lesion is the contracted kidney,—the kidney of interstitial nephritis. Again, if there be such a thing as functional anæmia, it is that form that is caused by insufficient food; but what blood-making organ is functioning imperfectly under such circumstances? I may be told that it is the mesenteric glands. To which I reply that if this be so, these organs are not the only ones whose function is impaired under such circumstance: what is to be said of the muscular system, the heart, and the brain? In fact, every tissue, organ, system, and sense, with the exception perhaps of the sense of hunger, is then impaired as to its function. I would also inquire by what right we deny to the blood-making organs that compensatory power that we accord to every other organ of the body? We are quite as fully warranted in assuming that, under adverse circumstances of nutrition, the functional capacity of the hæmopoietic organs is increased as that it is diminished; their stores of cells may then be poured out in extra quantity to supplement the deficiency in the food. And here let me throw out the suggestion that an increased, though perverted, activity of these organs may be concerned in the production of the fever that attends a prolonged abstinence from food.

The question of treatment is quite as obscure. It would seem at the first glance that, where the blood is deficient in a proximate principle, the indication is to restore the substance in the most readily assimilable form. Brilliant results have doubtless been at times in this manner obtained. Life has been saved in cases of post-partum hemorrhage by timely recourse to transfusion of blood, and health restored in cases of chlorosis and anæmia by the exhibition of ferruginous tonics; but we all know of cases, and doubtless ignore many more, where, the red cells being deficient, neither iron nor the most nutritious food, nor transfusion of any substance, nor, in fact, anything but the one drug indicated, will have the effect of fully restoring them. I may refer for example to the effect of small doses of mercury in the anæmia of syphilis, as fully demonstrated by Keyes, of New York. Mercury does not exist in the blood, nevertheless it will enrich it. Iodide of potassium, arsenic, and the preparations of cinchona will often have the same effect, and none of these substances exist in the blood, unless we make an exception in the case of cinchona, and believe, with Bence Jones, that a substance simlar to quinoidine is a normal constituent of the vital fluid. Even if this be so, however, there is no proof that the malarial poison destroys it, and that the administration of cinchona and its alkaloids in malarial disease is simply restoring what has been destroyed.

As regards the transfusion of milk, this substance is administered either with a view to its action as a nutriment, or for its mechanical effect, or with both these objects combined. We are certain as to the mechanical action only. It would be an interesting thing to determine what proportion the nutriment contained in the blood lost by the incision, bears to that contained in an ounce of milk.

Dr. Hunter, before concluding the discussion, would state that he did not think it safe to wash the apparatus with carbolic acid before using it, or if this is done it should be rinsed in a warm alkaline solution afterwards, and should be kept in a hot alkaline solution till everything is ready for the operation. It is important that the milk should remain alkaline. In the experiments reported by Dr. Thomas, out of seven dogs operated upon without this precaution, all died. The experiment being repeated upon other dogs with alkaline milk was successful. The speaker also did not consider it safe to use a cotton or linen gauze strainer, as some of the small fibres may be washed into the circulation: he had a metallic strainer made, which fits on the top of the reservoir or funnel.

Dr. John Guitéras said that the nervous phenomena following the transfusion of blood or of milk did not seem to him to resemble at all those produced by rapid de-

struction of hæmoglobin. In the latter class of cases, hæmatogenous jaundice, with its peculiar train of nervous symptoms, occurs; phenomena which had not been observed after transfusion. The symptoms in the latter case are not such as are found in cases of hæmatogenous jaundice due to destruction of the hæmoglobin, whether in the course of some diseases or produced experimentally, viz., by the injection of biliary acids, chloroform, etc.

The well-known symptoms following transfusion are chiefly due to mechanical causes, from obstruction in the circulatory apparatus. The dyspnœa is caused by the refusal of the capillaries to transmit the changed blood through the pulmonary tissue. This spastic contraction occurs everywhere as the result of this altered blood, and may even lead to rupture, extravasation, and infarction. The cerebral congestion and bursting pain, the difficulty in breathing, the chill, the profuse sweating, and the albuminuria may thus be accounted for.

(To be continued.)

REVIEWS AND BOOK NOTICES.

THE PRINCIPLES AND PRACTICE OF SURGERY, BEING A TREATISE ON SURGICAL DISEASES AND INJURIES. By D. HAYES AGNEW, M.D., LL.D., Professor of Surgery in the Medical Department of the University of Pennsylvania. Vol. I. Philadelphia, J. B. Lippincott & Co., 1878. Royal 8vo, pp. x, 1062.

The publication of the first volume of this long-expected work in advance of the succeeding portion, and the fact that there is much inquiry as to the scope of the completed part, lead us to occupy the space which has been allotted for the purposes of review with a bibliographical notice rather synoptical than critical in its character. The faults and deficiencies of the book—and no book is without them—will doubtless be pointed out by careful reviewers; but at present it may be equally interesting to note a few of its many merits, and to call attention to the opinions of its distinguished author, now for the first time published, upon some of the disputed points of surgical theories and practice.

The introductory chapter, on Surgical Diagnosis, is a succinct statement of the groundwork of fact and the methods of reasoning which underlie all endeavors on the part of the surgeon to arrive at a correct appreciation of the nature of the cases committed to his charge.

In considering the subject of inflammation, to which, with its results, Chapter I. is devoted, the author gives evidence of careful and original research into its nature and causes. He has repeated some of the experiments of M. Bernard, and has made others which have supplied material for several most accurate and life-like illustrations,—noticeably, those on page 47, contrasting the uninflamed and the inflamed mesentery of the frog. Several pages are devoted to a clear and interesting history of the causes and nature of inflammation. This is the first instance of a principle which will be found to pervade the entire work, that of giving not only the latest and most accepted theory of treatment or pathology, but also those which have been prevalent in time past but which have succumbed to modern research and progress.

In considering the subject of amputation after mortification, he formulates with great clearness and precision the circumstances under which the operation should or should not be performed. In those cases in regard to the treatment of which there is the greatest difference of opinion, viz., those of traumatic mortification where the disease is well established and rapidly progressing, without any line of limitation, he insists upon the necessity of waiting for the line of demarcation, and says that he is so thoroughly convinced of the correctness of this rule that in civil practice at least he can make no modification of it. Mr. Holmes, Mr. Erichsen, and the majority of English surgeons are, we believe, inclined to the opposite view, the latter especially urging immediate operation.

Chapter II. is devoted to the consideration of wounds, and opens with an account of the closure of vessels by nature, most of which is derived from a study of this process in various experiments on dogs performed under the supervision of the author. These have shown various interesting facts in relation to the organization of the clot and its unification with the walls of the vessel. Going on to the consideration of the arrest of hemorrhage, the various chemical hemostatics are mentioned, but as a class with little favor; torsion is unequivocally rejected, as possessing no advantage over ligation either in facility of practice or in subsequent healing, and as probably being more unsafe. Acupressure, arterioversion, and other methods are carefully described; but the author's opinion of the relative merits of all these plans is summed up in the following sentence: "The direct or immediate application of a thread to a wounded vessel is, on the whole, the most satisfactory mode of arresting hemorrhage." He never uses any other than the catgut ligature, and has the utmost confidence in its stability and efficiency if the following precautions are observed,—not to use the thread until it has been macerated for two or three months in carbolic acid and oil, or for a shorter time in the same mixture with the addition of chromic acid, to draw it between the thumb and finger in order to remove the adherent oil, to adjust the knot with care,

and to leave the ends about one-quarter of an inch in length. This careful mention of these apparently trivial but, as every practical surgeon will admit, highly important matters is an illustration, which might be multiplied indefinitely, of one of the most valuable, if not the most valuable, of the characteristics of this work. Nothing which in the immense experience of the author has been found directly or indirectly to affect the success of an operation or the conduct of a case has been forgotten or overlooked; and the book would be worthy a careful perusal for the sake of the many such little practical hints and suggestions with which it abounds, if for no other reason.

Detailed directions are given for the after-treatment of wounds, the application of bandages, compresses, adhesive plaster, etc., together with instructions for the employment of the antiseptic method, which the author says he believes, after a trial of one year, to possess advantages over all others.

After describing the different varieties of wounds, the subject of healing is considered, and here, as in the case of the process of closure of vessels, the illustrations are especially deserving of commendation, as conveying definite pathological ideas and differing from the stereotyped and incomprehensible diagrams which ordinarily befog this subject. In regard to the various modes of healing, the process of *immediate union* is rejected as impossible, as it is now, we believe, by the majority of surgical writers.

Chapter III. is taken up with Injuries of the Head. The rules for the treatment of simple and compound fractures of the skull are given with much precision and directness, the author evidently having decided and well-grounded opinions on this subject. In depressed and comminuted fractures, where symptoms of compression are absent, he refrains entirely from operative interference. He differs in this from Professor Gross, who recommends elevation of the fragments.

In the section on wounds of the face he describes his own operation for the cure of salivary fistula, the essential point of which is the introduction, from the inside of the mouth, of a thread between the external surface of the cheek and the duct, some distance above the opening of the latter, so as to cut it away from its attachments to the cheek, the ends being brought out of the mouth and serving to convey the salivary secretion in that direction.

Chapter IV. treats of Injuries of the Chest and Abdomen. An excellent instrument devised by the author for making compression on the intercostal artery is figured and described. The operation of thoracentesis is described, and its *early* performance recommended where the proper indications exist, the author believing that there is usually unnecessary and harmful delay in such cases. In his directions for the performance of this operation he advises the selection of the sixth intercostal space on the right side, and of the seventh on the left, thus differing from Erichsen, who chooses the "fifth intercostal space on the line of insertion of the serratus magnus," and from Bowditch, who directs that the puncture be made "on a line with the inferior angle of the scapula, and between the eighth and ninth or ninth and tenth ribs."

Chapter V., which treats of Wounds of the Extremities, is devoted almost entirely to injuries of the hand; though the surgical anatomy of what the author calls the "vital portions of the upper extremity" is carefully considered.

Chapter VI., on Diseases of the Abdomen, includes—rather strangely, perhaps—a section on ascites, which is, we believe, not usually considered as coming within the limits of a text-book on surgery, although the careful directions which are given for the performance of paracentesis abdominis might well excuse its presence. The difficult subject of intestinal obstruction receives careful attention, and the pages devoted to the diagnosis of the various and complicated causes of this serious condition are among the clearest and most instructive in the volume.

The early performance of colotomy is recommended in cases where the rectum or transverse or descending colon is occupied by carcinoma, and the operation of Bryant by an oblique incision is recommended, as preferable to those of Callisen and Amussat, in which the incision is vertical or transverse. Dr. William Ashmead, of this city, is given credit for the first performance of colotomy in this country, he having opened the left colon in March, 1838.

The rectal chemise of the author, for the arrest of hemorrhage from the hemorrhoidal vessels, is figured and described. It is a modification of the *canule à chemise* used in cases of hemorrhage after lithotomy, and is prepared in much the same manner.

The section on Hernia is, as might have been expected by those who have been familiar with the teachings and practice of the author during past years, one of the most valuable in the book. It affords, possibly, with the exception of that on Fractures, the best illustration of that careful attention to detail which has already been spoken of, and that combination of conservatism with boldness which, we may be permitted to say, has always characterized the professional work of Professor Agnew, and which is noticeable in the teachings of the present volume. We may call particular attention to the excellent diagnostic tables, to the clearness with which the anatomical points are elaborated, and to the directions for reduction by taxis and for the application of the truss.

In the description of the various methods for the radical cure of hernia, we notice that

no mention is made of the plan of Dr. George Heaton, of Massachusetts, which he calls "the method of tendinous irritation," and which he claims to have practised for years, and in many hundreds of cases, with convincing success. Dr. Agnew rejects the other operations which he describes,—Wutzer's, Wood's, Dowell's, his own, and others,—as unsatisfactory, if not unjustifiable.

We know that a large percentage, if not all, of these operations performed in this city by Dowell's method have been decided failures.

Chapter VII. treats of Diseases and Injuries of the Blood-Vessels.

The treatment of aneurism by the many proposed methods is considered, and the advantages of each are carefully weighed. The most minute directions are given for the employment of compression, a plan with which he has had large and successful experience. He believes that, while it is not possible at present to establish an entirely fair comparison between all of these different methods, enough is known to narrow the treatment down to the three plans of rest, ligation, and compression, the latter, in some of its forms, being first and fairly tested in every case.

Aneurisms of the special vessels are next considered.

The author refuses to believe that the uniform failure which has followed the operation of ligation of the abdominal aorta for iliac aneurism constitutes a sufficient argument for a dogmatic condemnation of this operation.

He omits to mention the operation of Watson, which was performed in Edinburgh in 1869 and was editorially mentioned in the *British Medical Journal* of August 21 of that year. This case, possibly for some good reason, has also been omitted by Erichsen, Bryant, Gant, and Fergusson, in their respective treatises.

Chapter VIII. treats of the Ligation of Arteries, includes several valuable tables, and, from the clearness of its surgical anatomy and the conciseness and practical value of its directions for finding the special vessels, is worthy of separate reprint, for the use and guidance of students and practitioners. Many of the illustrations here are new, and some are excellent.

Chapter IX. is a short description of various surgical dressings, including the principal roller-bandages and Mayor's handkerchiefs. The cuts illustrating this chapter are below the general standard of the book.

Chapter X., which treats of Injuries and Diseases of the Osseous System, is worthy of separate review as a treatise in itself. The subject is one with which the author has had unusual opportunities of becoming familiar, and his writings are the expression of the result of an almost unequalled experience. After a classification of fractures and a description of their general symptoms, the subject of the repair of fractures is taken up, and is treated in a manner which shows an intimate acquaintance with the pathological processes involved, derived from original experiments and from clinical observation. He disagrees with Mr. Paget, who denies the existence of the provisional or ensheathing callus except in the case of the ribs or clavicle, and believes it to be always present to some extent.

Ununited fracture is elaborately discussed. A dozen or more plans of treatment are described. A table detailing 685 cases, with the seat of fracture, operation, result, and other particulars, is given in extenso, and is followed by synoptical tables of the results of different methods in special bones, with the deductions to be drawn in each case. These will not bear condensation; but the treatment of the whole subject is more thorough than in any other treatise on surgery with which we are familiar, and the opinions advanced are, for that reason, entitled to be regarded with the greatest consideration. Another valuable table is given comprising the form and results of treatment in 6485 fractures treated at the Pennsylvania Hospital.

Space will not admit even the briefest mention of the many valuable and practical suggestions contained in the portion devoted to the diagnosis and treatment of special fractures.

In fractures of the surgical neck of the humerus he uses an internal angular splint in conjunction with a cap for the shoulder and outer arm, and, contrary to the teaching of many surgeons, discards as unnecessary the axillary wedge-shaped pad recommended by Sir Astley Cooper and used by most English surgeons at the present day.

In fractures at the lower end of the humerus he begins passive motion as early as possible, and at the end of four weeks casts aside all dressings and puts the limb in a sling. Erichsen does not advise passive motion in these cases until the expiration of a month or five weeks, nor Holmes until the end of three weeks. Although it is not expressly so stated in this book, we know that it is Dr. Agnew's custom to begin much earlier than this, even at the end of a week or ten days, if the swelling and inflammation have begun to subside. In all fractures of the humerus he recommends the application of a roller from the fingers up to the shoulder, disagreeing with Hamilton, who says it is wholly unnecessary, often a source of annoyance, and in most cases injurious.

In the treatment of fractures of the neck of the femur he differs from Sir Astley Cooper, Erichsen, and others, who recommend placing the limb on a double inclined plane, and from Holmes, who advises the use of the long splint, in adopting the rule of treating every such case as though it were situated in the shaft of the bone, namely, by placing the patient on the back and applying extension by ad-

hesive strips with the limb in the straight position. This is the plan advocated by Hamilton, who, however, uses in addition the long side-splint, which he says is necessary to prevent eversion, and which is not employed by Dr. Agnew, as interfering with extension; he uses short sand-bags as a substitute.

The author's testimony in regard to the results of fractures of the shaft of the femur coincides with that of most other surgeons of equal experience and frankness. Save in the case of children, he has never succeeded in curing a case without appreciable shortening.

All fractures of the shaft of the femur, except those at the upper third, he treats by the plan of extension by adhesive strips with a weight and pulley, which is commonly known in this country as Dr. Gurdon Buck's dressing, although, in this work, Dr. Joseph Swift, of Easton, Pennsylvania, is accredited with the first use of adhesive plaster as a means of extension in fractures. The directions for the application of this dressing are so minute, and at the same time so clear and definite, that by following them with care any intelligent reader would be able to apply the dressing perfectly.

In fractures of the patella he recommends a dressing of adhesive plaster attached to a posterior splint devised by himself. Nearly all the accepted methods of treatment of this injury are described, but no mention is made of the application of the principle of extension by adhesive strips and a weight and pulley to this fracture. We have treated two cases in this way with excellent results, and the plan seems worthy of further trial.

The concluding portion of this chapter is devoted to a consideration of caries, necrosis, osteomalacia, and rickets.

As a whole, Professor Agnew's work is one which may well claim a first rank among surgical treatises. Exception may be taken to the increased bulk which has been given it by the elaborate tables which it contains and by the space which has been devoted to the history of disease and treatment; but, while admitting that there is a golden mean between too little and too much teaching, we believe that the danger is usually rather in the direction of deficiency than of excess. The outline which we have given of his views on debatable subjects can convey but an imperfect idea of the great practical value of the book, which, as an embodiment of careful study and long experience on the part of an eminent surgeon, should be in the possession of all who have occasion to treat surgical diseases and injuries.

Those who are lazy or uninformed will need to have it on account of the ease and certainty with which its many practical suggestions and precepts may be appealed to in emergencies, and better-qualified and worthier practitioners will find in its pages much material aid and encouragement, which, so far as we know, they could not elsewhere obtain.

MISCELLANY.

A SITE has been secured for erecting a crematorium near London by the Cremation Society of Great Britain; and Mr. Eassie, C.E., has been instructed to erect upon it a pyre of the kind designed by Gorini and now in use at Milan.

DR. NICOLSON reports (*Southern Clinic*, October, 1878) a case of tetanus treated unsuccessfully by calabar bean, chloral, and bromide of potassium.

DR. H. D. SCHMIDT, of New Orleans, records (*N. O. Medical and Surgical Journal*, October, 1878) cases of cerebral disease apparently at discord with accepted views of localization.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM OCTOBER 20 TO NOVEMBER 2, 1878.

BAILY, J. C., MAJOR AND SURGEON.—Granted leave of absence for one month, and permission to leave the Division. S. O. 159, Division of the Pacific and Department of California, October 15, 1878.

JANEWAY, J. H., MAJOR AND SURGEON.—Relieved from duty in Department of the South, and to report to the Commanding General, Department of the East, for assignment. S. O. 235, A. G. O., October 30, 1878.

BARTHOLF, J. H., CAPTAIN AND ASSISTANT-SURGEON.—Relieved from duty in Department of the Columbia, and to report in person to the Commanding General, Department of California, for assignment. S. O. 235, c. s., A. G. O.

LORING, L. Y., CAPTAIN AND ASSISTANT-SURGEON.—Relieved from duty at Jefferson Barracks, Mo., and to report in person to Commanding General, Department of the Missouri, for assignment, to take effect November 25, 1878. S. O. 235, c. s., A. G. O.

FITZGERALD, J. A., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for six months. S. O. 236, A. G. O., October 31, 1878.

CORSON, J. K., CAPTAIN AND ASSISTANT-SURGEON.—Relieved from temporary duty at Fort Whipple, A. T., and assigned to duty as Post-Surgeon at Fort Yuma, Cal. S. O. 119, Department of Arizona, October 10, 1878.

AINSWORTH, F. C., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty as Post-Surgeon at Fort Whipple, A. T. S. O. 119, c. s., Department of Arizona.

HAVARD, V., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty at Chattanooga, Tenn. S. O. 66, Department of the South, October 22, 1878.

DE LOFFRE, A. A., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Relieved from duty in Department of the Missouri, to proceed to New York City, and on arrival report by letter to the Surgeon-General. S. O. 235, c. s., A. G. O.

WILCOX, T. E., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Relieved from duty in Department of the Missouri, to proceed to New York City, and, on arrival, report by letter to the Surgeon-General. S. O. 235, c. s., A. G. O.

NEWLANDS, WM. L., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—His resignation accepted by the President, to take effect October 25, 1878. S. O. 234, A. G. O., October 28, 1878.